Who Will Survive?

Engineering simulation may help determine which companies make it through the current economy and strengthen their competitiveness when markets rebound.

Engineering simulation is an indispensable tool in efficient product development processes at a growing number of companies. Engineers use the technology early in the cycle to evaluate concepts, compare alternatives, identify problems and optimize designs. Upfront analysis avoids the slowdowns and expenses of late-stage problem-solving with frantic design fixes and trial-and-error testing. These are among the powerful capabilities that enable companies to reduce costs, shorten time to market, improve quality and create innovative designs.

The ramifications of such benefits can be tremendous in terms of top-line revenue growth and bottom-line savings, and the increased profitability that companies reap is the staggering business value of engineering simulation, which can provide the impetus for executive-level decisions to invest in the technology. This is the theme of this issue's Spotlight section.

Coverage of this topic is especially timely, given the importance of this business value to companies around the world contending with continuing economic distress, financial uncertainty and volatile markets. Indeed, the competitive advantage provided by smart use of engineering simulation can be a deciding factor in determining which companies survive the current economic chaos. As the articles in this section show, there is no cookie-cutter approach to engineering simulation. Because of the wide range of corporate priorities and product portfolios, the ways in which technology is implemented and business values are obtained are unique for each company.

For example, mobile electronics and transportation system supplier Delphi Electronics and Safety Systems develops more-robust, reliable products and greatly reduces validation failures in prototype testing through a comprehensive program to train engineers at distributed sites around the world in upfront simulation, logging in over 11,000 hours of usage on a single product from ANSYS in a typical year. Tier-one mechatronic system supplier Brose Group had one simulation engineer in the 1990s and now has 45, with CAE usage growing by 50 percent annually. That organization applies engineering simulation in developing higher-quality, lower-cost automotive door and closure systems using tools such as ANSYS multiphysics technology.

Gas turbine component supplier Power Systems Manufacturing helps power-generation companies avoid expensive downtime using ANSYS Workbench based technology to optimize the design of compressor blades. Nozzle manufacturer Spraying Systems Co. strengthens its relationships with customers and provides an additional source of revenue by using software from ANSYS to study and suggest improvements in the designs of customers' gas conditioning solutions that utilize nozzles in complex pollution control systems.

Clearly, these companies recognize that they're not just analyzing parts but are building customer relationships, creating value-added services, growing revenue streams and boosting their competitiveness. That's the true business value of engineering simulation, which NAFEMS Chief Executive Tim Morris aptly describes as a strategic weapon. In his article "Championing Simulation," he notes that best-in-class companies are often those that make the greatest use of the technology. Investments in simulation make companies more competitive, allowing businesses to emerge from the current recession stronger — and probably with fewer competitors. ■

John Krouse, Senior Editor and Industry Analyst